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Coping with Supply-chain Shocks: Learning from Organization's Response in Times of Crisis

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Problem of practice:

Why are some supply-chain links disrupted by external shocks while others are maintained? How do firms recover quickly from supply-chain shocks in times of crises? Recent research by teams led by Guedhami and Todo provides some answers by examining how firms responded to the Covid-19 crisis.[1,2] Flexibility in strategy and the ability to optimize corporate policies to capitalize on the staggered impact of the pandemic in different countries across the world have proven to have helped. Moreover, links with a supplier or customer in the home country of a foreign-owned firm ensured that firms were less adversely affected while having access to suppliers and customers across different countries enabled the firms to recover quickly. Additionally, government support can also mitigate supply chain risks and even transform challenges into opportunities

[1,2] The two articles—'Economic impact of COVID-19 across national boundaries: The role of government' by Omrane Guedhami, April Knill, William Megginson & Lemma W. Senbet featured in Volume 54 of *Journal of International Business Studies* and 'Robustness and resilience of supply chains during the COVID-19 pandemic' by Yasuyuki Todo, Keita Oikawa, Masahito Ambashi, Fukunari Kimura and Shujiro Urata featured in Volume 46, Issue 6 of *The World Economy* — talk how organizations can cope with supply chain shocks

Robustness vs resilience

The world has been witness to huge shocks in the last few years including the outbreak of the Covid-19 pandemic and Russia's war on Ukraine and the Israel-Gaza conflict. These events have had significant implications for trade and investment due to the disruption of global value chains.

The pandemic, especially, has strongly reinforced the awareness of global interconnectedness. The study by Guedhami et al describes it as triple-shock phenomena — supply shock, demand shock and financial shock. In fact, a survey by Ernst & Young shows that only 2% of companies who responded to the survey said they were fully prepared for the pandemic.[3]

The effect of the pandemic on the advantages of multinationality was perhaps felt the most in supply chains. In many cross-border operations, the location of supply bases in directly-affected regions created disruptions in supply networks, with absent workers and closed plants resulting in an inability to deliver products. As research by Baldwin et al, cites, a supply-side shock in East Asia's (Japan, Korea, Taiwan and China) manufacturing sectors had a negative impact on manufacturing sectors of other countries as well due to supply linkages, especially in automobile, textiles and ICT goods sectors.[4] A similar case is cited by Maliszewska et al where a decrease in domestic output in Thailand due to Covid-19 led to increasing trade costs and under-utilization of capital, especially in the ICT goods industry that has the highest level of fragmentation of production in that country.[5]

Hence, building resilience during crises should be the topmost priority for firms integrated into supply chains. The firms need to build the ability to continue firm operations during a crisis (robustness) and the ability to recover in the post-crisis period (resilience) in supply chains. The difference between the two has been distinguished in research by Brandon Jones and team and Sébastien Miroudot.[6,7] The research proposes two opposing solutions to build resilience.[8] One, create insurance against disruption by diversifying the supplier base, albeit at an additional cost, to reduce excess dependence on one country. Two, compensate for loss from a few supplier breakdowns and isolation from any disruption by bringing manufacturing firms back home.

If a firm relies exclusively on suppliers from only one or a few countries, it can be negatively impacted by localized risks from health crises, natural disasters and geopolitical events. Hence, diversifying to alternative suppliers or locations of production during a crisis is a better robustness strategy compared to bringing manufacturing back home.

So, what should firms do? In terms of strategy, research by Guedhami and team shows multinational firms need to be flexible and capitalize on the staggered impact that global shocks may have in different countries. Research by Todo et al examined how a sample of firms in India and the ASEAN countries responded to the Covid-19 crisis to provide more clarification. They found that links with a supplie or customer in the home country of a foreign-owned firm ensured that firms were less adversely affected ('robustness') during the pandemic. However, ownership relationships coupled with strong supply chain links did not lead to a similar mitigating effect. Finally, having access to suppliers and customers across different countries enabled the firms to recover quickly ('resilience') from the Covid-shock. So...what should firms actually do? Here are the four 'best practices'.

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1. Don't forget your roots

When a foreign firm is establishing its presence in a new market, it explores a new set of buyers for its products and suppliers for its inputs and raw materials. At the same time, it also has its previously existing commercial relationships, some of which may be with buyers and suppliers in the same country as its parent company. For example, when Ikea was initially launched in India, it continued doing business with consumers in the EU even while the company had begun acquiring new customers and local suppliers within India.[9] This would have helped it during the pandemic. When a firm faces a negative production shock, it may maintain transactions with its old and familiar clients and suppliers while reducing transactions with relatively new ones. This is done as the organization expects such behaviour to be reciprocated by its old clients and suppliers if and when they confront a crisis in the future.

This tendency of organizations to connect with those who are socially and economically similar or geographically close is a major driving force of social network formation. Such relationships promote trust among economic agents because of psychological proximity. When a foreign-owned business is linked with a buyer or seller in its home country, decision makers in that organization are more likely to feel psychologically close to and trust these buyers and sellers, and thus maintain these relationships even in the wake of a crisis.

2. Avoid vertical integration

Strong supply chain links involve the use of specific inputs such as inter-firm shareholding, collaboration or information sharing among others, which are developed along with strongly connected suppliers and customers. Hence, it is difficult to find substitutes when production is hit by a crisis. Moreover, when a firm is closely linked with its suppliers and customers (which in turn are also linked with each other), the disruption can have rapid ripple effects. Both these factors account for the adverse effects of strong supply chain links. Take the example of the Great East Japan earthquake which impacted subsidiaries of Japanese firms in the US.[10]

At the same time, strong supply chain links can also be more flexible. For example, when a firm's production is hit by a crisis, it may prioritise arm's length transactions with clients with which it has no ownership relationship (because these transactions cannot recover easily from a shock) over intra-firm transactions with clients with which it has ownership relationships (because such transactions entail smaller short-run adjustment costs). Just like the COVID-19-induced lockdowns on Reliance oil and gas also affected Reliance petrochemicals.[11] Hence it is advisable to not have strong supply-chain links coupled with ownership relationships such as the one as these are not robust during crises.

3. Diversify country presence

As mentioned above, being able to substitute inputs and suppliers is crucial for supply chains to be resilient. When the supplier of a particular input is impacted by a crisis (e.g. plants shut down due to Covid-19-induced lockdowns), the customer firm can recover quickly if it can easily find a substitute supplier. One way any organization can increase input substitutability is by diversifying partners across countries so that supply is not affected if the crisis is localized (like a volcanic eruption) or is not multi-country.

The pandemic witnessed several firms moving their operations to new countries and diversifying their customers and suppliers. Apple decided to move its mobile phone manufacturing to Vietnam, India, Taiwan and Mexico during the second half of 2020.[12] Google's smartphone unit was already in the process of moving to Vietnam, while the organization had already planned to shift to Thailand for its smart-home product unit.[13]

A similar trend was observed in the textiles and clothing industry. During the pandemic, the Indonesian textiles industry witnessed a 10% rise in the number of orders, primarily from global brands looking to substitute trade with China.[14] Indonesia was a preferred location because its supply chains in the industry were localized and so were relatively insulated from the outbreak in China. Another favoured destination for the relocation of textiles manufacturing like the Japanese megabrand UNIQLO has been Vietnam.

While Southeast Asian countries seem to be the most preferred destinations after China, Mexico has also emerged as a close favourite especially for American and Japanese firms.[15] The US also used the pandemic as an excuse to move pharmaceutical production back home from China. Moreover, American companies began relying more on locally sourced electronic parts rather than sourcing them from China.[16] This led to an increase in orders to local firms and to a few Mexican counterparts.

The best practices when dealing with a supply chain crisis:

1. Don't forget your roots
2. Avoid vertical integration
3. Diversify country presence
4. Be flexible

The diversification strategy is more applicable to trade in goods and services that require physical proximity between the seller and the consumer for the transaction to be effected. It would be less applicable to services traded digitally – financial intermediation, ICT and several other such business and professional services – as these services transactions continue across borders despite global or local shocks, as was observed during the pandemic.

4. Be flexible

As per Guedhami et al, multinational firms have to be flexible in their response to supply-chain disruptions as they strive to optimize corporate policies to capitalize on the staggered impact that global shocks may have in different countries. The multinational brewing giant AB InBev was able to finance a shift in production from COVID-19 hot spots to areas with relatively fewer cases, which minimized the negative impact of the pandemic.[17]

Ethiopian Airlines, the largest African airline with a global reach, provides an excellent example of flexibility when it converted 25 passenger planes into cargo planes when the bulk of its passenger fleet was grounded in the wake of Covid-19. This pre-emptive diversification strategy ensured a steady income during the pandemic and also let the organization deal with the pandemic without seeking government bailouts unlike other industry giants like Emirates. The airline was able to utilize the opportunity to deliver COVID-19 equipment to 70 odd countries in Africa and elsewhere. That said, it is likely that Ethiopian Airlines exploited a first-mover advantage in moving into the cargo space and as other airlines would have followed suit generating competition and lower mark-ups, this strategy would cease to be profitable for new entrants.

Similarly, in several instances, service transactions began being conducted remotely in response to the Covid-19 crisis e.g. online school and college classes, virtual tourism, spurt in telemedicine services and so on. These firms were able to quickly move away from traditional ways of conducting their business, though their ability to do so largely depends on the characteristics of the product or service.

From resilience to thriving

The world is getting affected by crises more frequently, with the latest crisis being the war in Ukraine, and the conflict in Gaza. These crises are likely to slow down growth even in developed countries, and hence firms need to ensure that they are not hurt much and for long. While business strategy is important, government policy also has a role to play. Just like Japan's $2 billion Covid-19 stimulus package, to incentivize shifting of production in high-tech manufacturing sectors back home or to other Southeast Asian economies/India. In response, Honda auto-parts maker H-Tech amped up production in its plant in the Philippines at the cost of production in China.[18] Another auto parts manufacturer providing parts to Japanese carmaker Mazda shifted out of China to Guanajuato, Mexico.[19] Hence, proactive government policies can also help improve the business climate and enhance the attractiveness for trade and investment.

A question to ponder is ...do these policies and strategies apply to cross-border contexts such as digital products and financial services? What if the ongoing conflicts in the Red Sea were to damage Internet cables? Or if satellite-based communications were disrupted by an act of God or humans? In such cases, experts recommend diversifying strategic suppliers, as well as upgrading your capabilities for smart switchovers in case of network failures.[20]

In an increasingly interconnected and global business world, companies are increasingly at risk of supply chain disruptions having a cascading negative impact. The good news? Four strategies and public policy support can not only reduce the risk but even reverse the negative to positive outcomes.

As per a survey:

- All automotive and nearly all (97%) industrial products felt the negative effect of the pandemic
- 47% of all companies reported that the pandemic disrupted their workforce

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